Environmental Considerations for Deep Draft Navigation

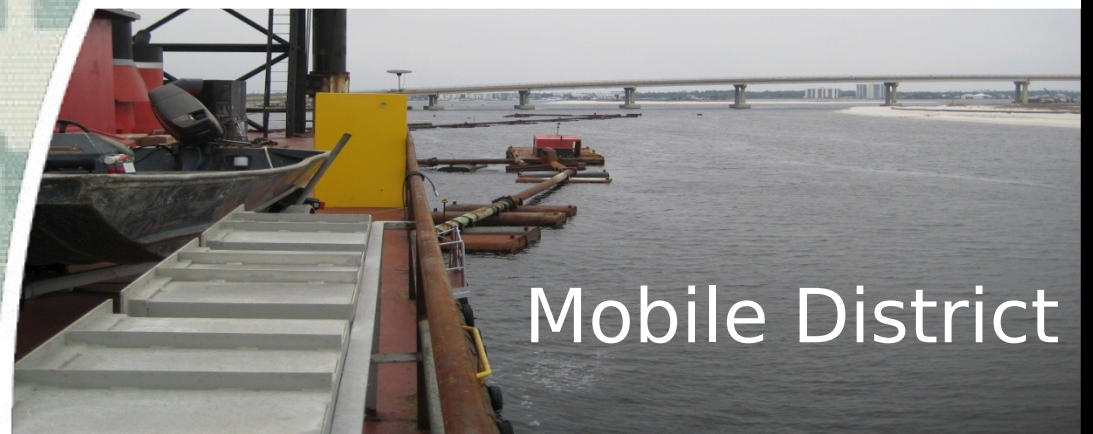
Presenter:

Ms. Jenny L. Jacobson

Date:

May 17, 2011

Charleston, South Carolina



Mobile District

US Army Corps of Engineers
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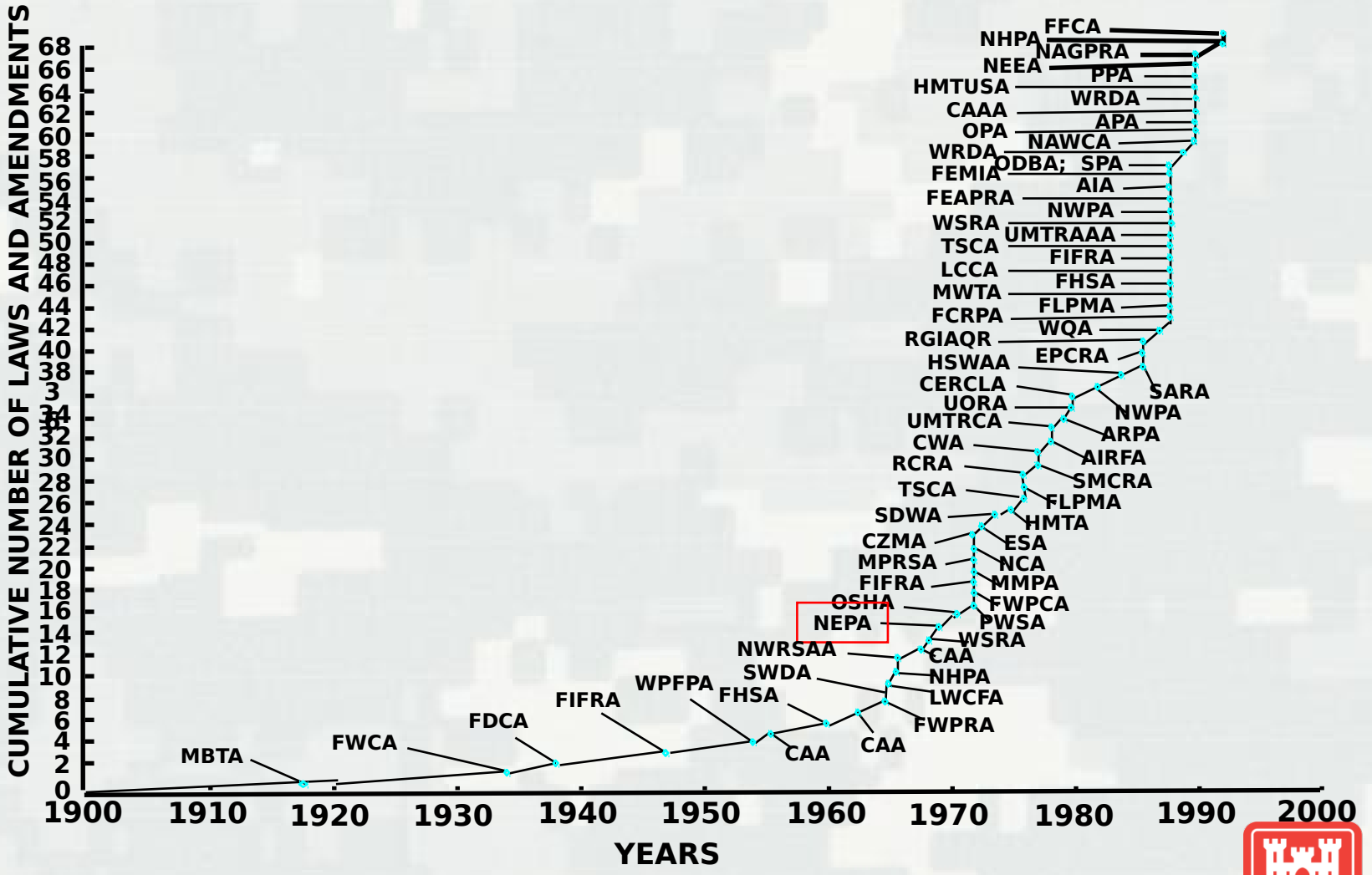
Environmental Considerations - Deep Draft Navigation
Upfront Cheat Sheet Notes

- Occur in environmentally sensitive coastal areas (rivers, estuaries, coastal inlets, nearshore marine)
- Have potential for complex & large scale environmental impacts – require complex studies and evaluation
- Environmental considerations take time and $$$
- Environmental compliance for DDN is not static – i.e. not one and done – it's alive **Change will happen**.
- Interdisciplinary PDT needed for environmental compliance
- Many environmental laws and regulations involved
- Coordination with Agencies & Public is **critical.** Compliance is a continual & collaborative process. You can never have enough!
  - Early, Frequent, Complete (need transparency), Modern Tools
- The NEPA process can help us make better projects

Environmental Laws Affecting USACE DDN Mission

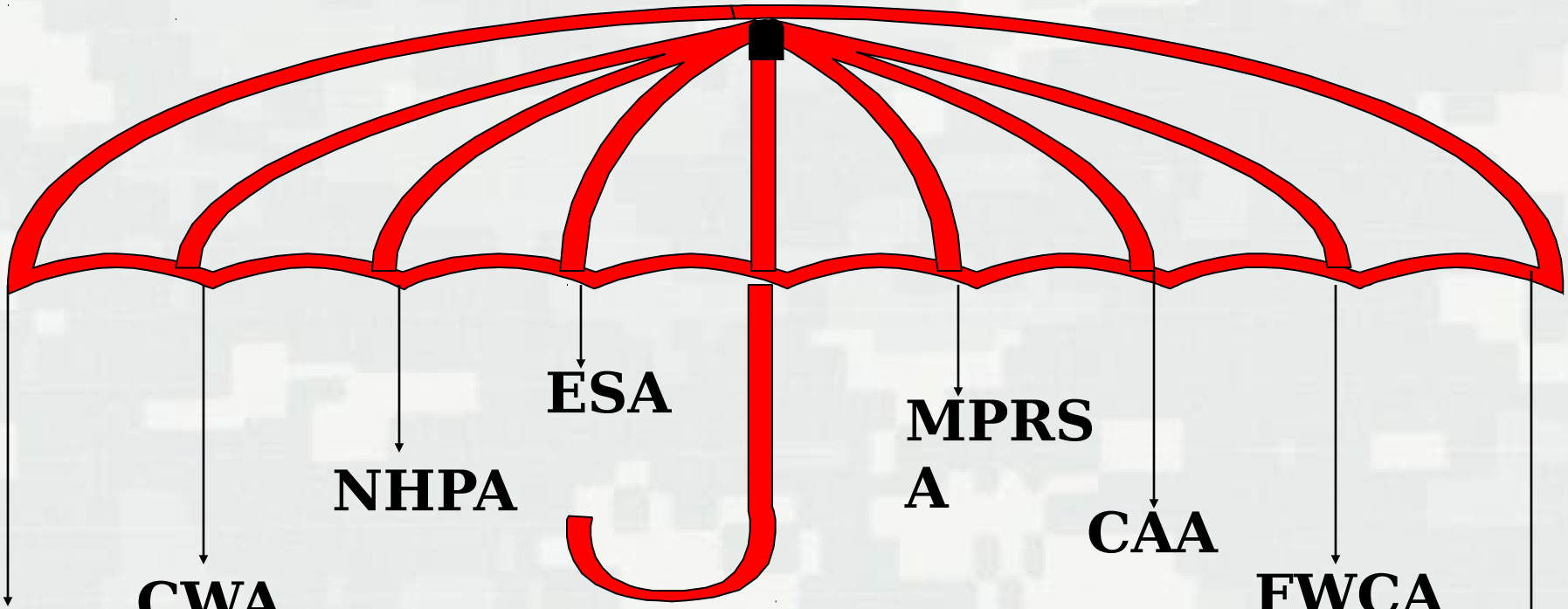
- National Environmental Policy Act
- Fish and Wildlife Coordination Act
- Clean Water Act
- Coastal Zone Management Act
- Marine Protection, Research & Sanctuaries Act
- Resources Conservation and Recovery Act
- Toxic Substances of Control Act
- Coastal Barrier Resources Act
- Clean Air Act
- Endangered Species Act
- Marine Mammals Protection Act
- Magnuson-Stevens Fishery Management & Conservation Act
- Migratory Bird Treaty Act
- National Historic Preservation Act

Impact of NEPA



A Collaborative Process

National Environmental Policy Act (Overarching Concept)



National Environmental Policy Act 1969
42 U.S.C. 4321 *et seq.*

Purpose

"…to declare a national policy which will encourage productive and enjoyable harmony between man and his environment…"

History

Rachel Carson: Silent Spring '63
Cuyahoga River Burning '69
S. 1075, Senator Jackson '69
HR 6750 Rep. John Dingell '69
Signed by President Nixon 1 Jan 1970, PL 91-190

National Environmental Policy Act 1969

- Requires all Federal agencies to **consider environmental consequences of Federal actions** - aimed at the Federal government and not at individuals or the states.
- For **"major" Federal actions** significantly affecting the quality of the human environment, a **detailed statement required by the responsible official on ... the environmental impact of the proposed project ....EIS**
- The idea of NEPA - **procedural steps** be taken by an agency prior to the initiation of any project to assure that the **decision maker** and the **public** would be **apprized of the environmental consequences** of the project. NEPA puts the environment on equal footing with other factors, such as economics, defense needs, etc.
- NEPA requires an agency to **take a hard look at environmental impacts**, but that agency can still decide to take the most destructive course of action if it wants. There is no requirement in NEPA that the agency bias its decision in favor of protection of public health and the environment.
- The **detailed evaluation required before a 'critical decision' made to act**. This threshold is reached when the agency proposes to make an **irreversible and irretrievable commitment of resources** to a project.
- The key things that must be identified and considered are: **reasonable alternatives** to the proposed action, the **direct impacts of each alternative** (including the proposed one), the **indirect impacts**, and the **cumulative impacts** of the proposed action with other nearby or similar actions.
- Agency must have **site-specific data and information** on which to base those considerations.

NEPA No No's

- A court may reverse an agency's decision under NEPA if the agencies decision was:
  - **arbitrary**
  - **capricious**
  - **an abuse of discretion or otherwise not in accordance with process & law**
- P**ublic opportunity for comment** in the NEPA process - required
- Agency NEPA procedures must insure that environmental information is **available to public officials and citizens <u>before</u> decisions are made and before actions are taken**. Requires full and open disclosure of all facts used in making the decision.
- The information must be of high quality – a hard look.

- **Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA**.

National Environmental Policy Act 1969

- CEQ Regulations (40 CFR 1500.1)
- USACE ER 200-2-2: Environmental Quality - Procedures for Implementing NEPA, 4 March 1988
- Collaboration!!!!
  - Lead Agency – USACE
  - Cooperating Agencies
  - Scoping – public input
- Process for EIS
  - Draft – 45 day public review
  - Final – 30 day public review
  - ROD

  - Requires full and open disclosure of all facts used in making the

decision (not better documents – but better decisions)

Endangered Species Act 1973

"Each agency shall ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical …"

Criminal and Civil Penalties

Section 7(a)(2) - Consultation requirem

- Informal – 30 days
- Formal – 135 days
  - ➢ Conservation Recommendations
  - ➢ Reasonable & Prudent Measures
    - o Terms and Conditions
    - o Non-discretionary, minimize level of take

Impacts

- Species
- Constituent elements of critical habitat

Fish and Wildlife Coordination Act 1956

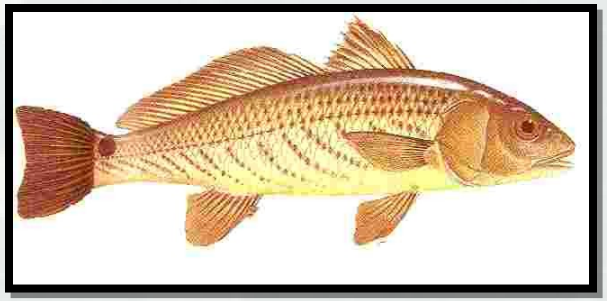
- Recognizes contribution of wildlife resources to the nation and provides that their conservation receives equal consideration with other water resource project features
- Consultation with FWS, NMFS, and State agencies required
- Consultation required throughout planning process
- FWCAR required as part of decision document (for new work dredging; not required for O & M)

Magnuson-Stevens Fishery Management & Conservation Act 1956

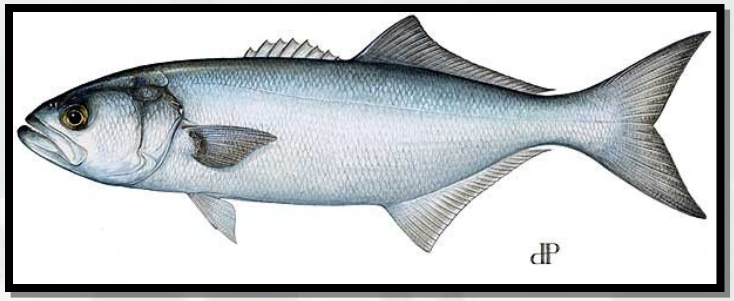
"Promote the conservation and management of marine fisheries."

- Coastal populations
- Anadromous species
- Goal to optimize fisheries yields

- EFH regulations effective 1999



Red Drum



Bluefish

Essential Fish Habitat

- Federal Action agency required to consult with NMFS, Habitat Conservation Division (HCD) (i.e. NOAA Fisheries) for:
  - Actions with potential to adversely impact EFHs (reduction of quality or quantity)
- NMFS provides conservation recommendations
- Agency must respond (ex. Mobile District MOA)

Migratory Bird Treaty Act 1918

- Prohibits harassment of listed migratory birds
- Avoid areas of active nesting
- Requires shorebird nesting surveys
- Requires development of shorebird management pla

Cultural Resource Laws

Cultural resources are elements of our environment which have been made, built, altered or modified in some way, left behind as physical remains, or considered to sustain a cultural identity (both physical and non-physical) by humans

Circa 1877 Old Stone shops at Rock Island Arsenal, Illinois

http://www.achp.gov

National Historic Preservation Act 1966

- State Historic Preservation Officer (SHPO)
- Tribal Historic Preservation Officer (THPO)
- Section 106 Consultation
  - Mandates procedural steps in consideration of effects
  - Does not prevent action

Clean Water Act 1977

- CWA is the principle law governing pollution control and water quality of the nation's waterways
- The main purpose is to restore/maintain the chemical, physical and biological integrity of the nation's waters
- Regulates placement of dredged or fill material in Waters of the US
- Defines USACE Regulato

Florida Department of Environmental Protection

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

ADEM Alabama Department of Environmental Management

Mississippi Department of Marine Resources

Clean Water Act 1977

- Section 401- State certification required for a project to be in compliance with established effluent limitations and water quality standards of the State
- Section 402 – NPDES (DA construction not use)
- Section 404 – Discharge of dredged or fill material (includes effluent from upland DAs)
  - Section 404(b)(1) Guidelines – USACE projects must comply
- Fill (beneficial use) within ocean waters is addressed under the Clean Water Act

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Marine Protection Research & Sanctuaries Act 1972

- Regulation of ocean dumping
  - ➢ Targets degradation of the marine environment
  - ➢ Establishes USACE regulatory authority over ocean disposal of dredged material

- Establishes process of designating sites in the ocean to receive dredged material that has been determined to be suitable

3 Nautical Miles (Territorial Sea)

Marine Protection Research & Sanctuaries Act 1972

- Section 102
  - Requires EPA, in consultation with USACE, to develop Environmental Criteria for Ocean Disposal
  - Designate Ocean Disposal Sites
- Section 103
  - Assigns USACE Specific Authority for Authorizing Ocean Disposal
  - USACE selection of ocean disposal sites, where no EPA designated site exists
  - USACE permitting process
  - Evaluation of suitability of material for disposal

EPA's OSV Bold

Coastal Barrier Resources Act 1982

Minimize loss of human life, wasteful expenditure of Federal resources, and damage to fish, wildlife, and other natural resources

- Atlantic and Gulf coasts, Great Lakes
- Undeveloped coastal barriers – depositional geologic feature and associated aquatic habitats
- Restricts Federal financial assistance
- Consultation with FWS

Coastal Barrier Resources Act 1982

- **Exemption**
  - Section 6(a)(2) – the maintenance or construction of improvements of existing Federal navigation channels (including the Intracoastal Waterway) and related structures (such as jetties), including the disposal of dredged materials related to such maintenance or construction
  - Must have been authorized before the date on which the relevant System unit was included within the system

Coastal Zone Management Act 1972

Preserve, protect, develop, restore and enhance the resources of the nation's coastal zone for current and future generations

Coastal Zone - coastal waters to the limits of territorial seas or international boundaries

Coastal Waters - Great Lakes, connecting waters, and waters adjacent to shorelines; i.e. bays and estuaries

Coastal States - includes those states bordering the

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Coastal Zone Management Act 1972

- Section 303 - Requires cooperation with state and local governments to effect the purpose of the law
  - ► Applicable out to 3 mile limit or to the state jurisdictional boundary
- Section 307 – Assure projects consistent with approved state plan to the maximum extent practical
  - ► Consistency Determination (CD)

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Coastal Zone Management Act 1972

- CD - Includes an evaluation of the relevant provisions of the State's Management Plan, project description, project effects and supporting data for the conclusions of the CCD
  - Agency makes call on conformity, requests State concurrence
  - Should be included in NEPA document. See 40 CFR 1502.25
- Conflict Resolution Process – mediation chaired by Secretary of Commerce with cabinet level agency representation

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Clean Air Act 1970

Protection of public health and welfare by the control of air pollution at its source

“General Conformity Rule”

http://www.epa.gov/ebtpages/air.html

Clean Air Act 1970

- States required to develop Implementation Plans (SIP) to obtain and maintain compliance with National Ambient Air Quality Standards (NAAQS)
  - Strategy by which the state plans to meet and maintain (NAAQS) requirements
  - Budgets emission quotas for various sources
  - EPA approval required
- Agency determines applicability/conformity with SIP
  - Consultation with State/EPA
  - Analysis and reporting

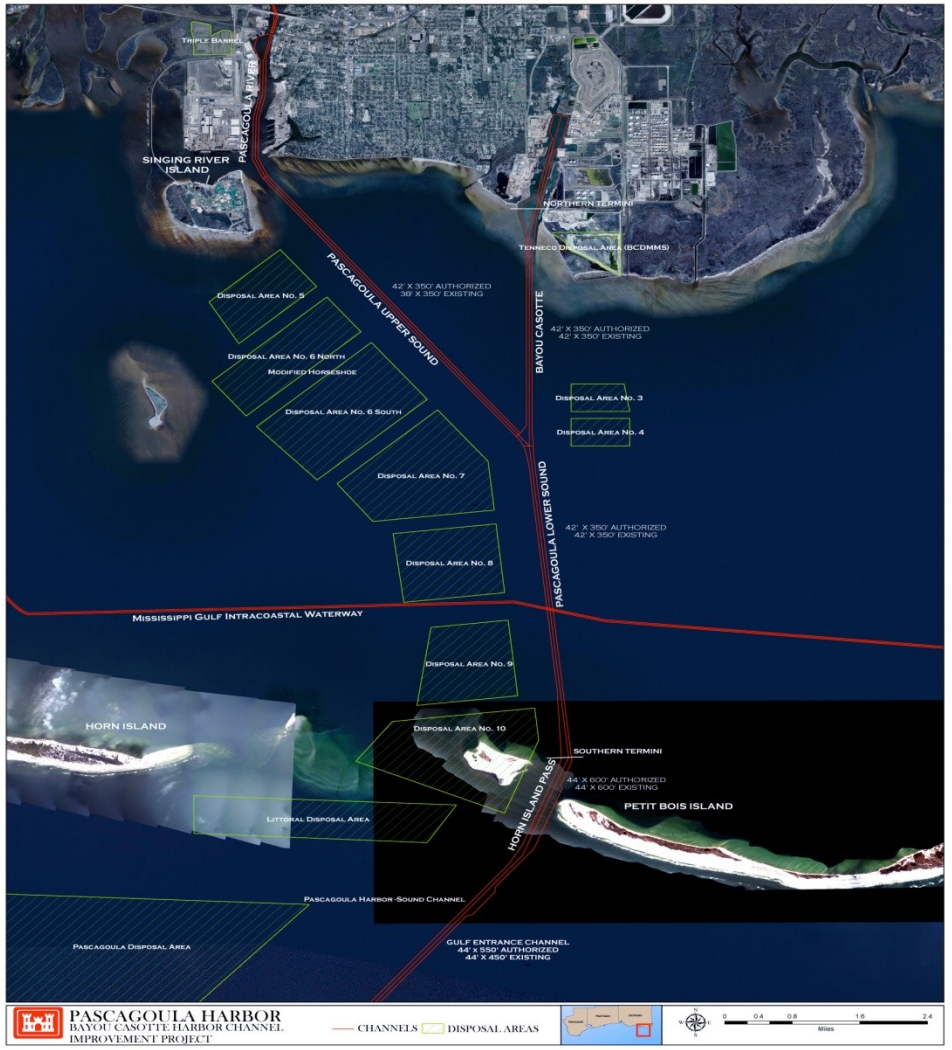
Deep Draft Projects in Mobile District

- Panama City Harbor, FL
- Pensacola Harbor, FL
- Mobile Harbor, AL
- Pascagoula Harbor, MS
- Gulfport Harbor, MS

PASCAGOULA HARBOR – OVERVIEW

Five Segments -

1. Pascagoula Upper River
   - A Channel 16 feet deep by 70 feet wide from River Mile 0.0 to 5.0 (~29,500 feet)
2. Pascagoula Inner Harbor & River
   - A Channel 38 feet deep by 350 feet wide with a turning basin 38 feet deep, 2,000 feet long, and 950 feet wide on the west side below Railroad Bridge
3. Bayou Casotte Inner Harbor
   - A Channel 42 feet deep by 350 feet wide and a turning basin 42 feet deep, 1,000 feet wide and 1,750 feet long



PASCAGOULA HARBOR – OVERVIEW

Five Segments Cont. –

4. Mississippi Sound – Lower Pascagoula, Upper Pascagoula & Bayou Casotte
   - A Channel 42 feet deep by 350 feet wide along the Lower Pascagoula & Bayou Casotte
   - A Channel 38 feet deep by 350 feet wide along the Upper Pascagoula
5. Pascagoula Harbor Bar Channel & Horn Island Pass
   - A Channel 44 feet deep by 450 feet wide from GOM to south end of Horn Island Pass
   - A Channel 44 feet deep by 600 feet wide (~4.5 miles) including impounding area for littoral drift, 44 feet deep, 600 feet wide, and 1,500 feet long

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PASCAGOULA HARBOR – OVERVIEW

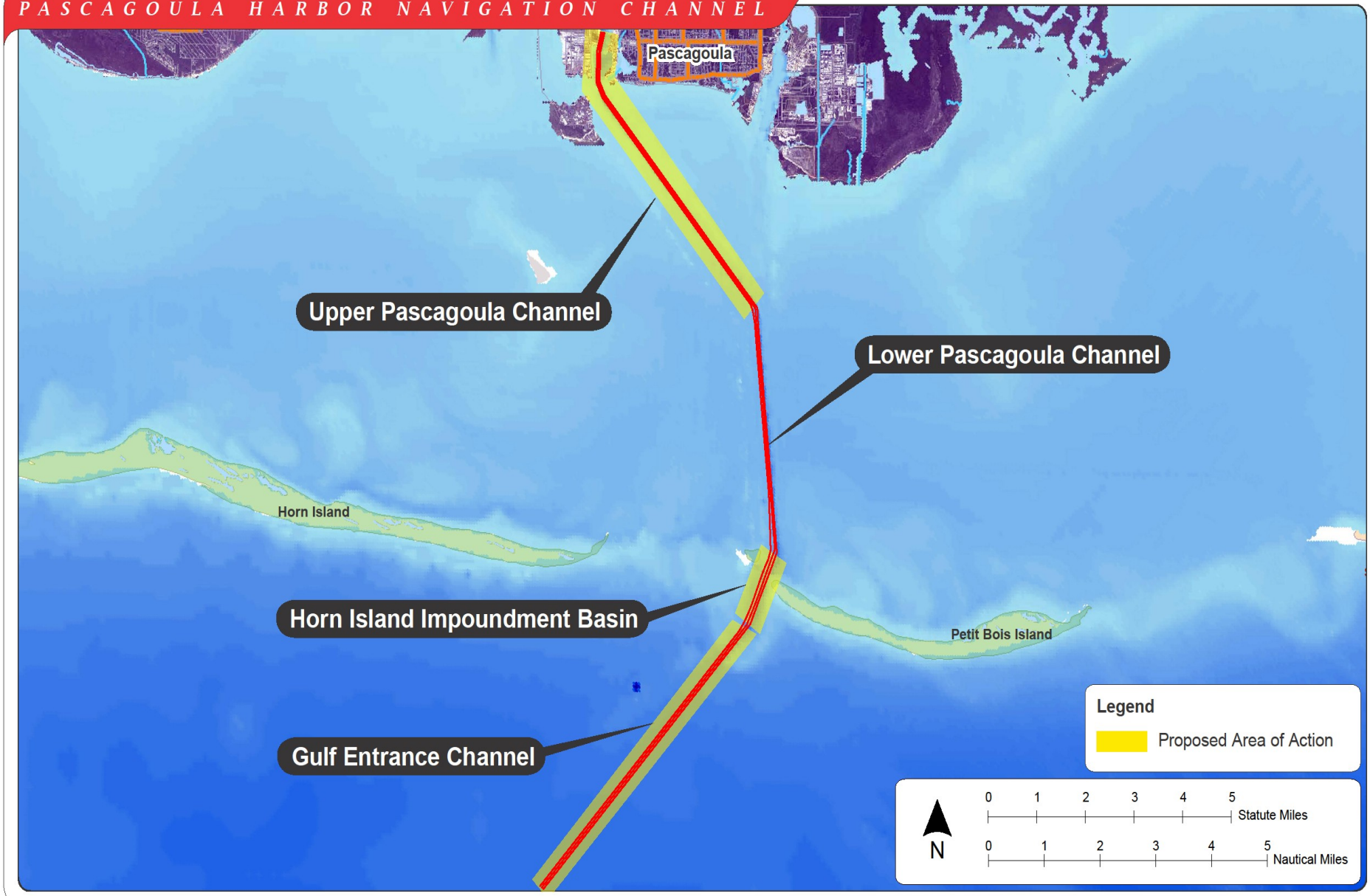
Segment	O&M Cycle	Cubic Yards	Dredge Type	Material Composition	Placement Areas
Pascagoula Harbor Bar Channel & Horn Island Pass	~18 months	~200,000 to ~600,000	Hopper/Hydraulic Cutterhead	Predominantly Sands	Placement Area 10 to the west of the channel, the littoral zone placement area between the -14- and -22-foot depth contours southeast of the east end of Horn Island, and in the USEPA designated Pascagoula ODMDS
Mississippi Sound - Lower Pascagoula, Upper Pascagoula and Bayou Casotte	~18 months	~1,200,000	Hydraulic Cutterhead	Silts, Clays, and Sands	Lower Pascagoula - 6, 7, 8 and 9 open-water placement areas; Bayou Casotte - 3 & 4 open-water placement areas; Upper Pascagoula - 5, 6, 7, and 8 open-water placement areas and the confined upland placement site, Triple Barrel
Pascagoula Inner Harbor and River	~18 months	~200,000	Hydraulic Cutterhead	Silts, Clays, and Sands	Triple Barrel upland area and open-water placement areas 5 and 6 and/or the Pascagoula ODMDS to preserve long-term management of upland site
Bayou Casotte Inner Harbor	~36 months	~450,000	Hydraulic Cutterhead	Silts, Clays, and Sands	Bayou Casotte Dredged Material Management Area and/or the Pascagoula ODMDS
Pascagoula Upper River	~36 months	~50,000 to ~70,000	Hydraulic Cutterhead	Predominantly Sands	Nine (1-9) upland placement areas

Site	Approximate Acres
3	160
4	2689
5	600
6	555
7	2035
8	842
9	569
10	1523
Littoral Zone	985
Pascaogula ODMDS	20565

Proposed Areas of Action

US Army Corps of Engineers
Mobile District

PASCAGOULA HARBOR NAVIGATION CHANNEL



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Sediment Characterization

US Army Corps of Engineers
Mobile District

PASCAGOULA HARBOR NAVIGATION CHANNEL

Studies Peformed

Sediments planned for dredging and disposal undergo a thorough evaluation prior to removal. Sediments are analyzed to identify physical and chemical conditions present and are further evaluated to determine impacts on marine life.

The characterization process includes:

- ✓ *Collection of sediment cores to evaluate conditions for the planned dredging activities*
- ✓ *Laboratory analysis of sediment organic and inorganic chemical and sediment physical characteristics*
- ✓ *Laboratory analysis of elutriate water samples to simulate the potential for the release of chemicals during placement*
- ✓ *Toxicity testing of both sediments and water to estimate impacts from placing sediments in disposal areas*
- ✓ *Bioaccumulation studies with sediment*

Disposal Alternatives

PASCAGOULA HARBOR NAVIGATION CHANNEL

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Mobile District

Beneficial Uses of Dredged Material

Adjacent to Singing River Island

- ✓ 400-acre open water area will be used as a semi-confined site for sandy dredged material disposal
- ✓ Disposal here would create new tidal marsh through channel dredging deposition (> 150 acres)
- ✓ Dredged material containment using GeoTubes
  - — GeoTubes would be filled with sandy dredged material
  - — Water is allowed to pass through permeable material
  - — GeoTubes serve as containment to keep dredged sediments in place at Singing River Island

Mobile Harbor Authorization

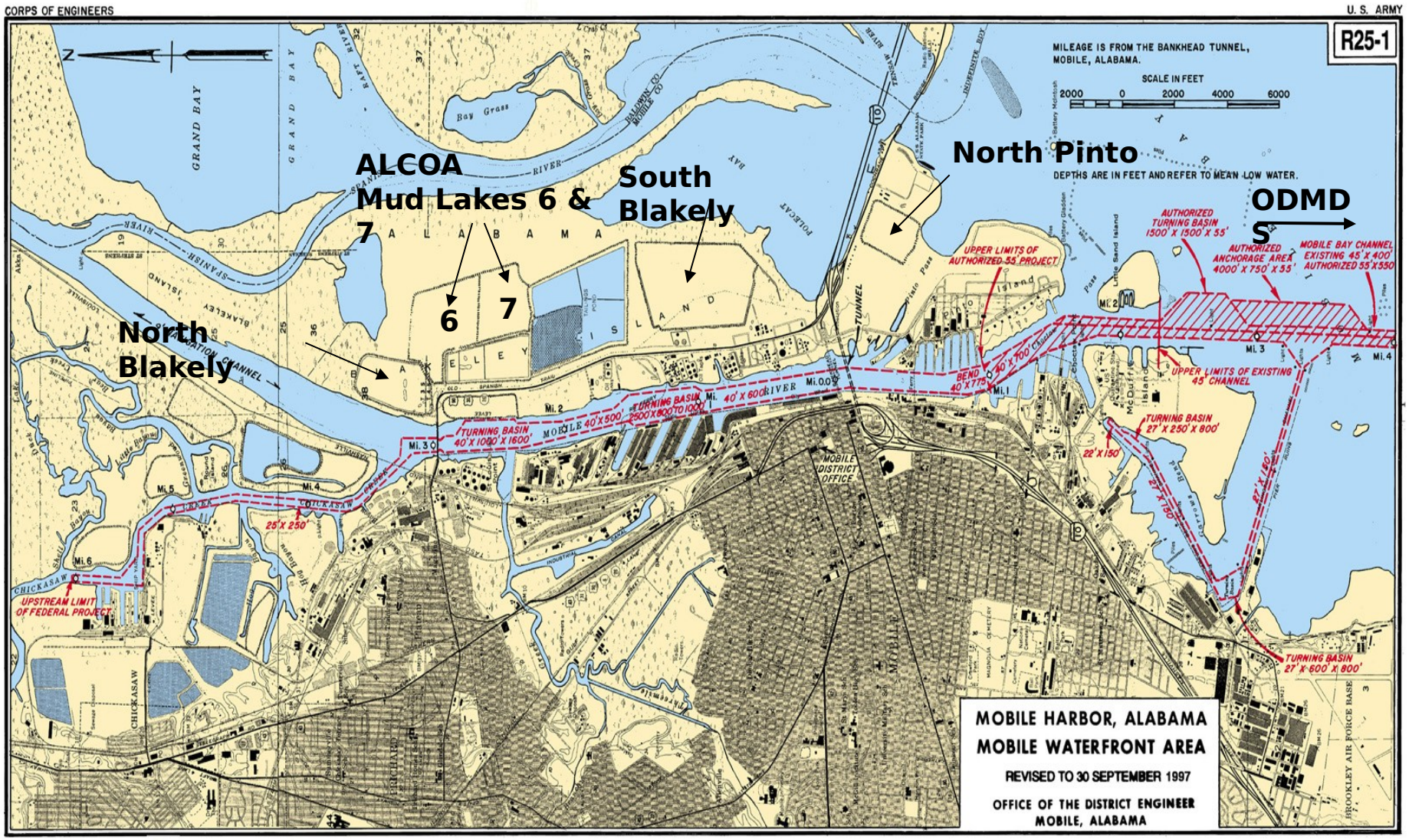
The navigation channel dredging in Mobile Bay and Mobile River began in 1826 with enactment of the River and Harbor Act of 1826. Over subsequent years, the federal project at Mobile River and Mobile Bay was expanded to include adjoining channels within the bay. Section 104 of the River and Harbor Act of 1954 (House Document 74, 83rd Congress, First Session, as amended, and previous acts) authorized a 40-foot channel. Improvements to the existing federal project were authorized in Water Resources Development Act of 1986 (PL 99 – 662, Ninety-ninth Congress, Second Session), which was approved 17 November 1986, and amended by Section 302 of the Water Resources Development Act of 1996. The authorized project dimensions are: a) 57 by 700 feet for a distance of 7.4 miles across the bar; b) 55 by 550 feet for a distance of 27.0 miles in the bay; c) 55 by 650 feet for a distance of 4.2 miles in the bay; and, d) provision of a 55-foot deep anchorage and turning basin in the vicinity of Little Sand Island.

Existing Project Dimensions

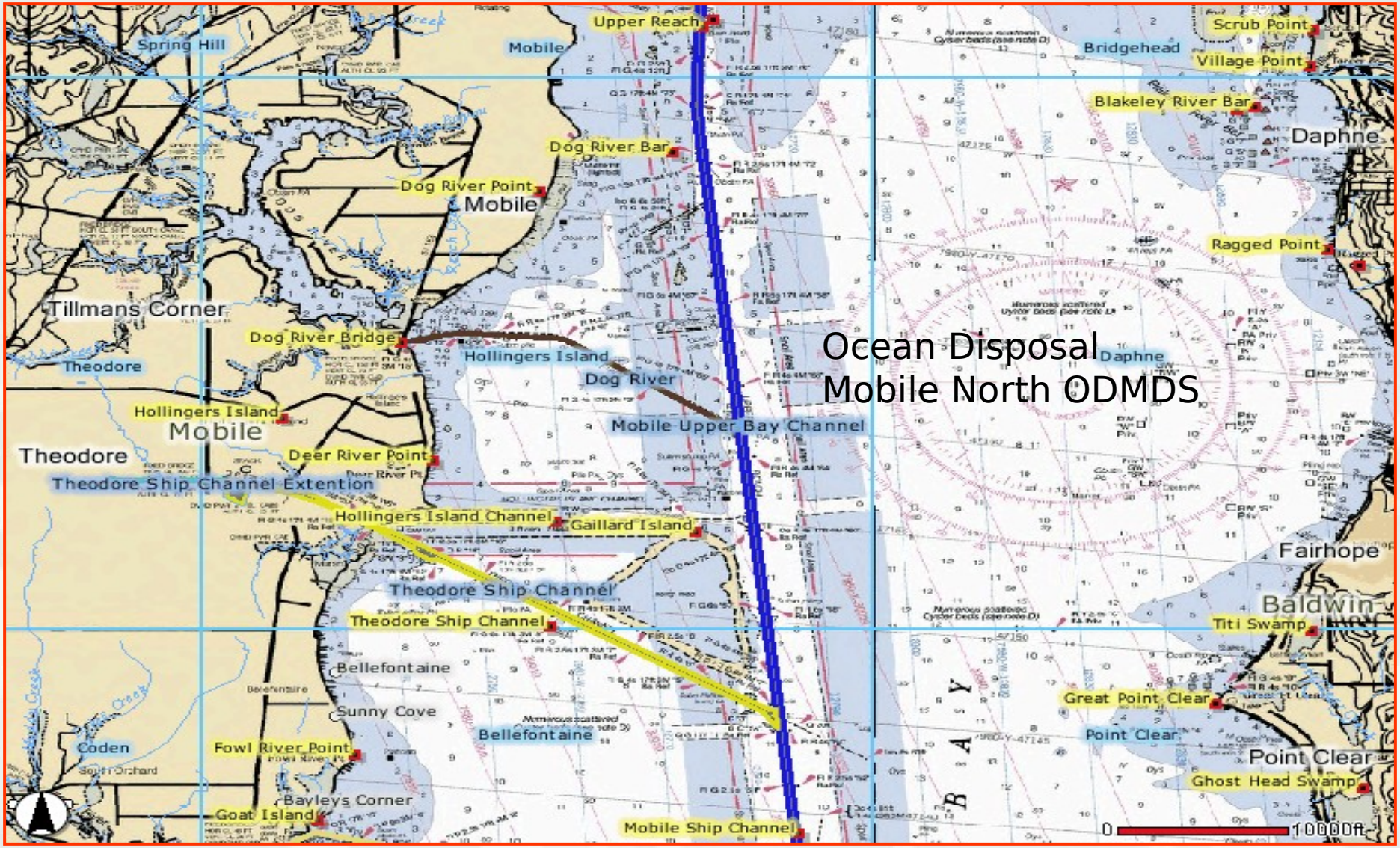
- Existing project provides for
  - 47-foot* by 600-foot channel about 1.5 miles long across Mobile Bar
  - 45-foot* by 400-foot channel in Mobile Bay to mouth of Mobile River
  - 40-foot* channel in Mobile River to highway bridge, varying from 500 to 775 feet wide
  - Turning basin 40 feet***, 2,500 feet long, and 800 to 1,000 feet wide, opposite Alabama State Docks
  - Turning basin 40 feet**, 1,000 feet wide, and 1,600 feet long opposite Magazine Point
  - Turning basin 45 feet** between Pinto and Little Sand Islands, 1,350 feet from the centerline of the existing channel
  - Extensions deepen from 38 feet to 45 feet* approximately 3,300 feet on the east side of the upper Mobile Harbor Channel dredging

* plus 2 feet advanced maintenance plus 2 feet allowable overdepth
** plus 4 feet advanced maintenance plus 2 feet allowable overdepth
*** plus 8 feet advanced maintenance plus 2 feet allowable overdepth

River Channel

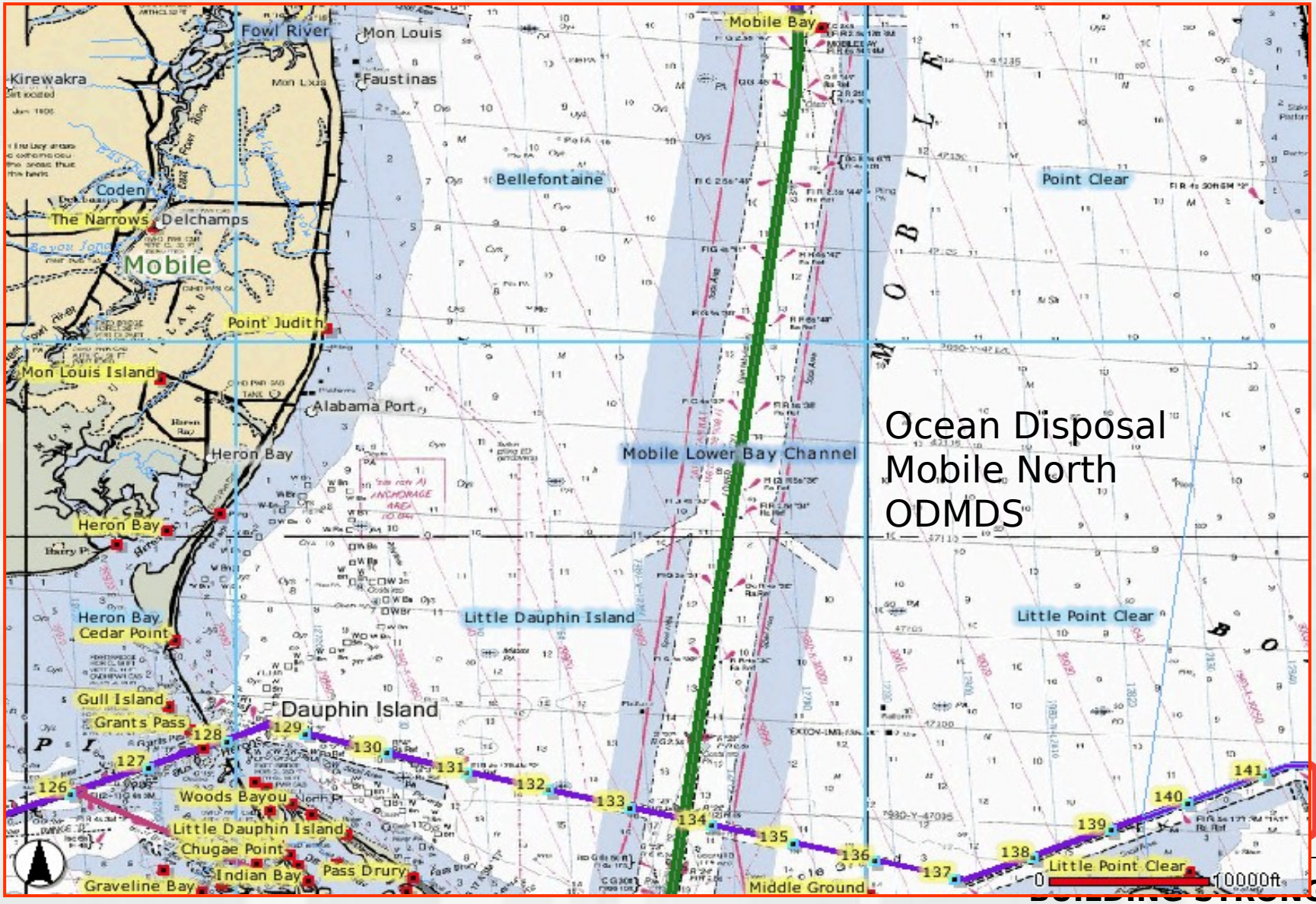

CORPS OF ENGINEERS
U. S. ARMY
R25-1
MILEAGE IS FROM THE BANKHEAD TUNNEL, MOBILE, ALABAMA.
SCALE IN FEET
2000 0 2000 4000 6000
DEPTHS ARE IN FEET AND REFER TO MEAN LOW WATER.
ALCOA
Mud Lakes 6 & 7
South Blakely
North Pinto
ODMDS
North Blakely
6
7
GRAND BAY
ALABAMA
MOBILE
CHICKASAW
UPPER LIMITS OF AUTHORIZED 55' PROJECT
AUTHORIZED TURNING BASIN 1500' X 1500' X 55'
AUTHORIZED ANCHORAGE AREA 4000' X 750' X 55'
MOBILE BAY CHANNEL EXISTING 45' X 400' AUTHORIZED 55' X 550'
UPPER LIMITS OF EXISTING 45' CHANNEL
TURNING BASIN 27' X 250' X 800'
TURNING BASIN 27' X 600' X 800'
TURNING BASIN 40' X 1000' X 1600'
TURNING BASIN 2500' X 800' TO 1000'
BEND 40' X 775'
40' X 600'
40' X 500'
25' X 250'
22' X 150'
UPSTREAM LIMIT OF FEDERAL PROJECT
MOBILE DISTRICT OFFICE
MOBILE HARBOR, ALABAMA
MOBILE WATERFRONT AREA
REVISED TO 30 SEPTEMBER 1997
OFFICE OF THE DISTRICT ENGINEER
MOBILE, ALABAMA

Upper Bay Channel

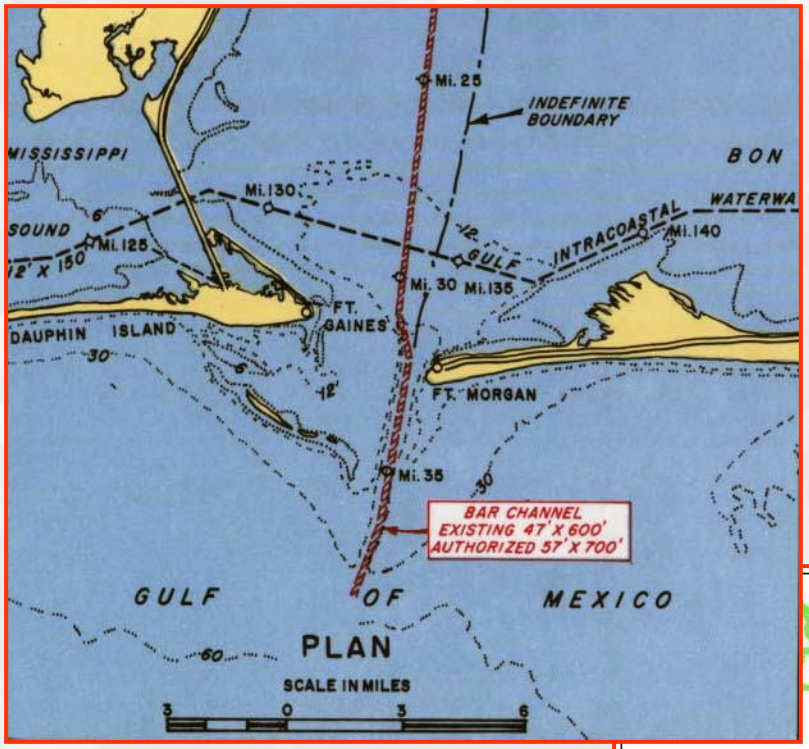


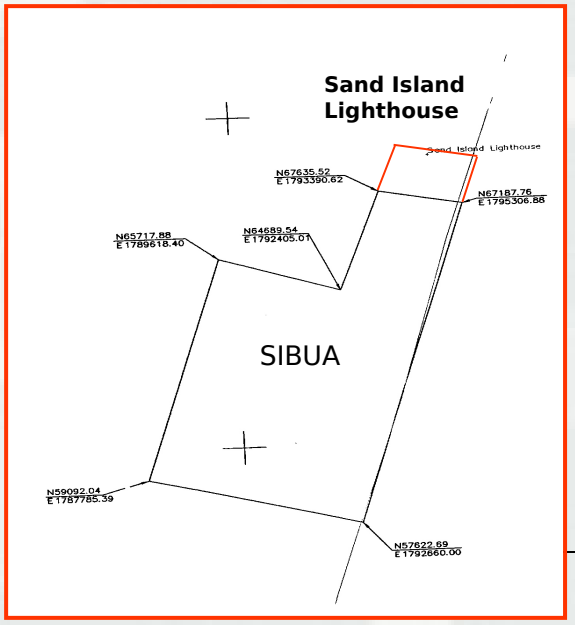
Gaillard Island

Lower Bay Channel



Bar Channel


Mi. 25
INDEFINITE BOUNDARY
MISSISSIPPI
BON
Mi. 130
WATERWA
SOUND
Mi. 125
INTRACOASTAL
Mi. 140
GULF
Mi. 30
Mi. 135
FT. GAINES
DAUPHIN ISLAND
FT. MORGAN
Mi. 35
BAR CHANNEL
EXISTING 47' X 600'
AUTHORIZED 57' X 700'
GULF OF MEXICO
PLAN
SCALE IN MILES


Sand Island Lighthouse
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E1793390.62
N67187.76
E1795306.88
N65717.88
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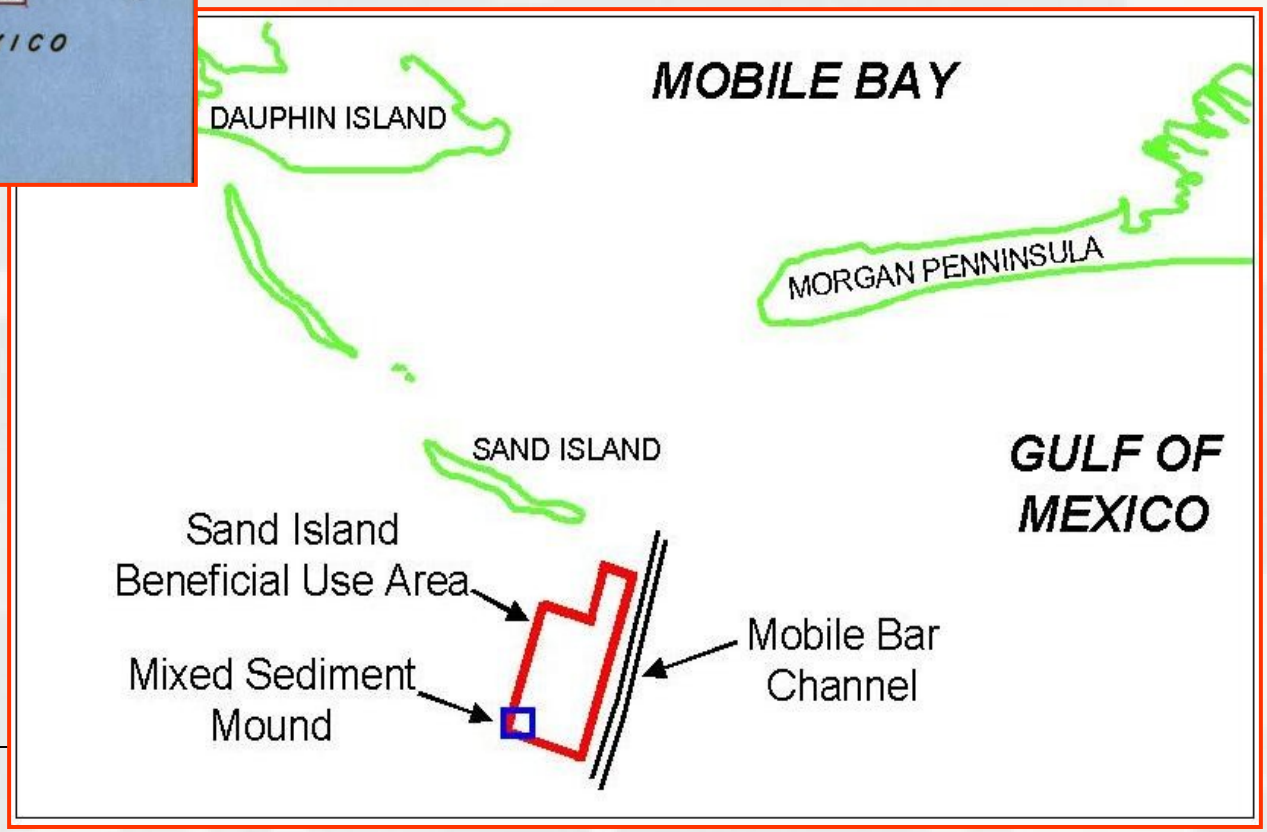
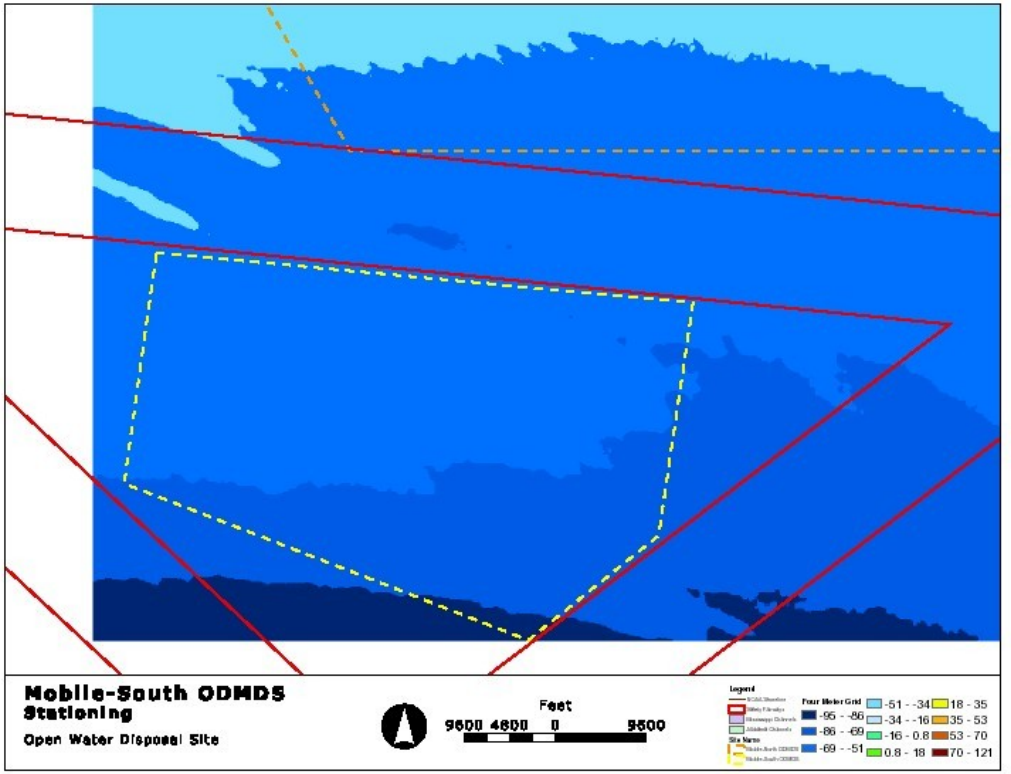
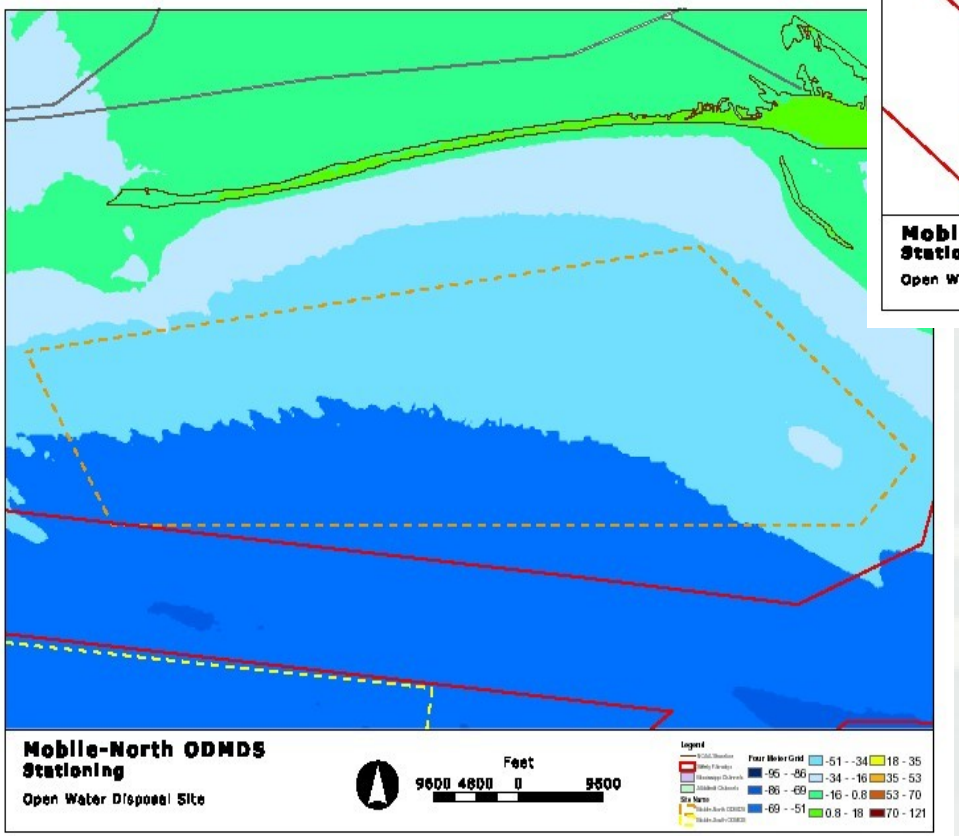
N57622.69
E1792660.00


MOBILE BAY
DAUPHIN ISLAND
MORGAN PENNINSULA
SAND ISLAND
GULF OF MEXICO
Sand Island Beneficial Use Area
Mixed Sediment Mound
Mobile Bar Channel


Mobile-South ODMDS
Stationing
Open Water Disposal Site
Feet
9600 4800 0 9500
Legend
Four Meter Grid
-95 - -86
-86 - -69
-69 - -51
-51 - -34
-34 - -16
-16 - 0.8
0.8 - 18
18 - 35
35 - 53
53 - 70
70 - 121


Mobile-North ODMDS
Stationing
Open Water Disposal Site
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9600 4800 0 9500
Legend
Four Meter Grid
-95 - -86
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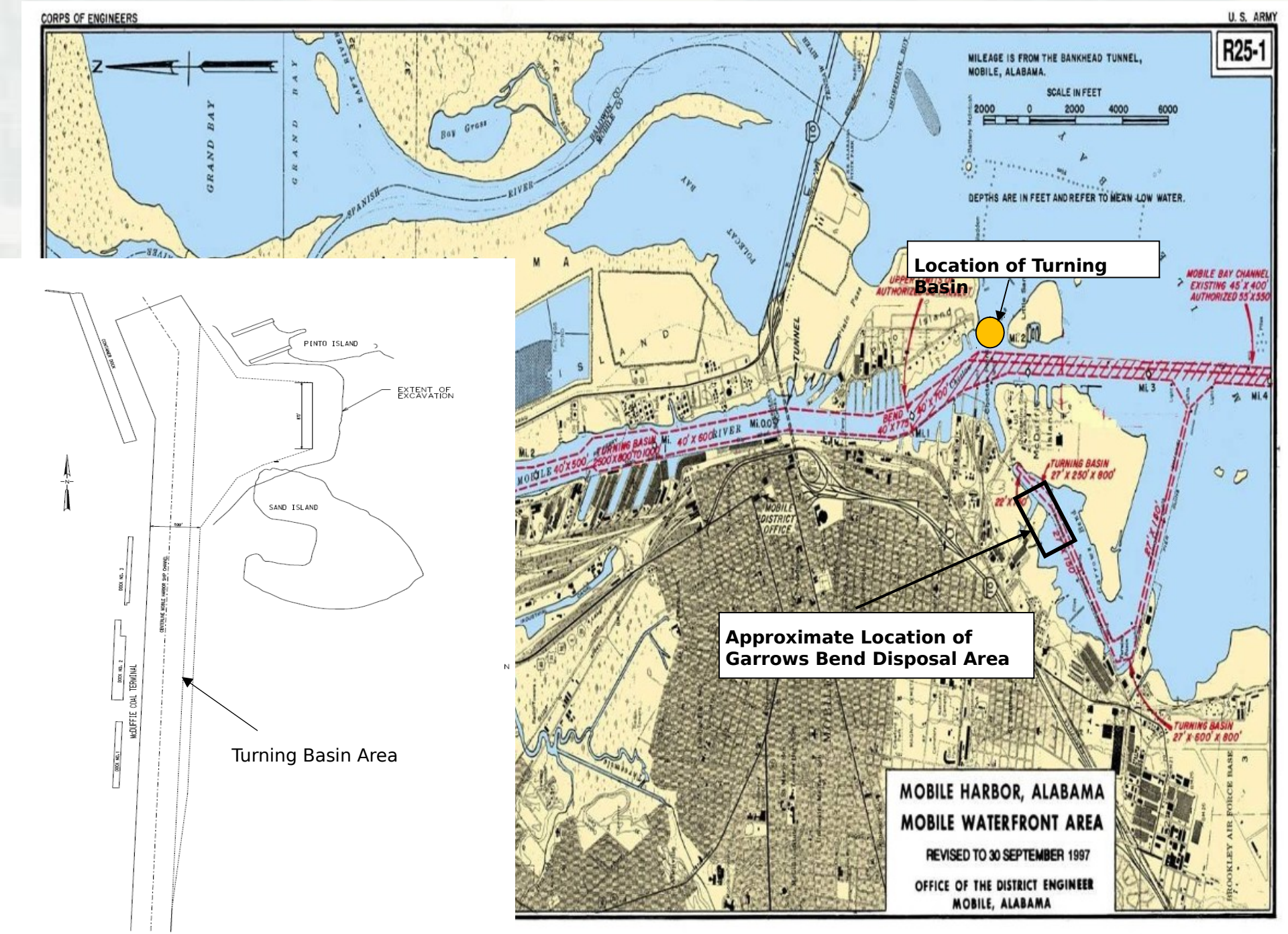
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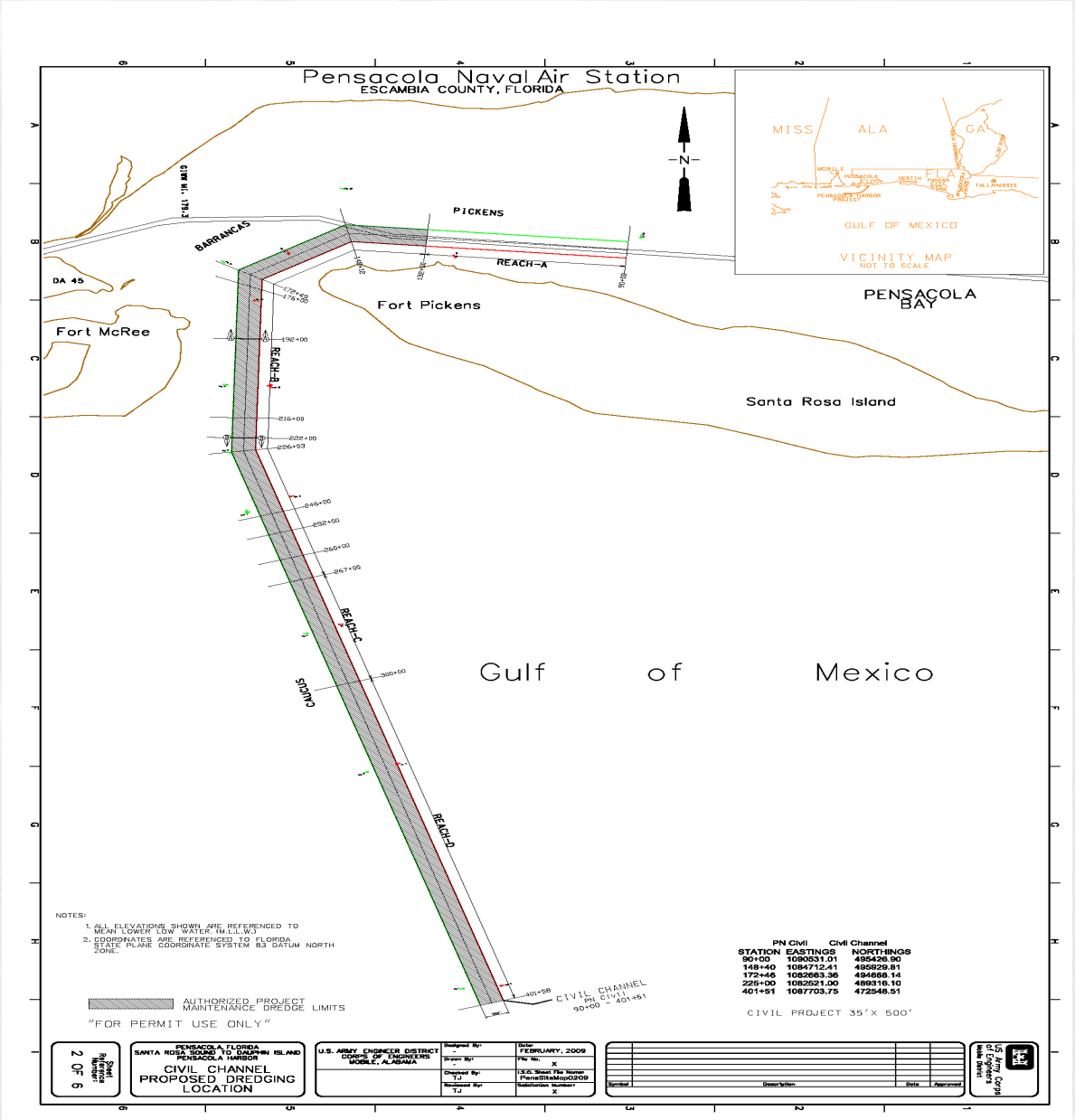
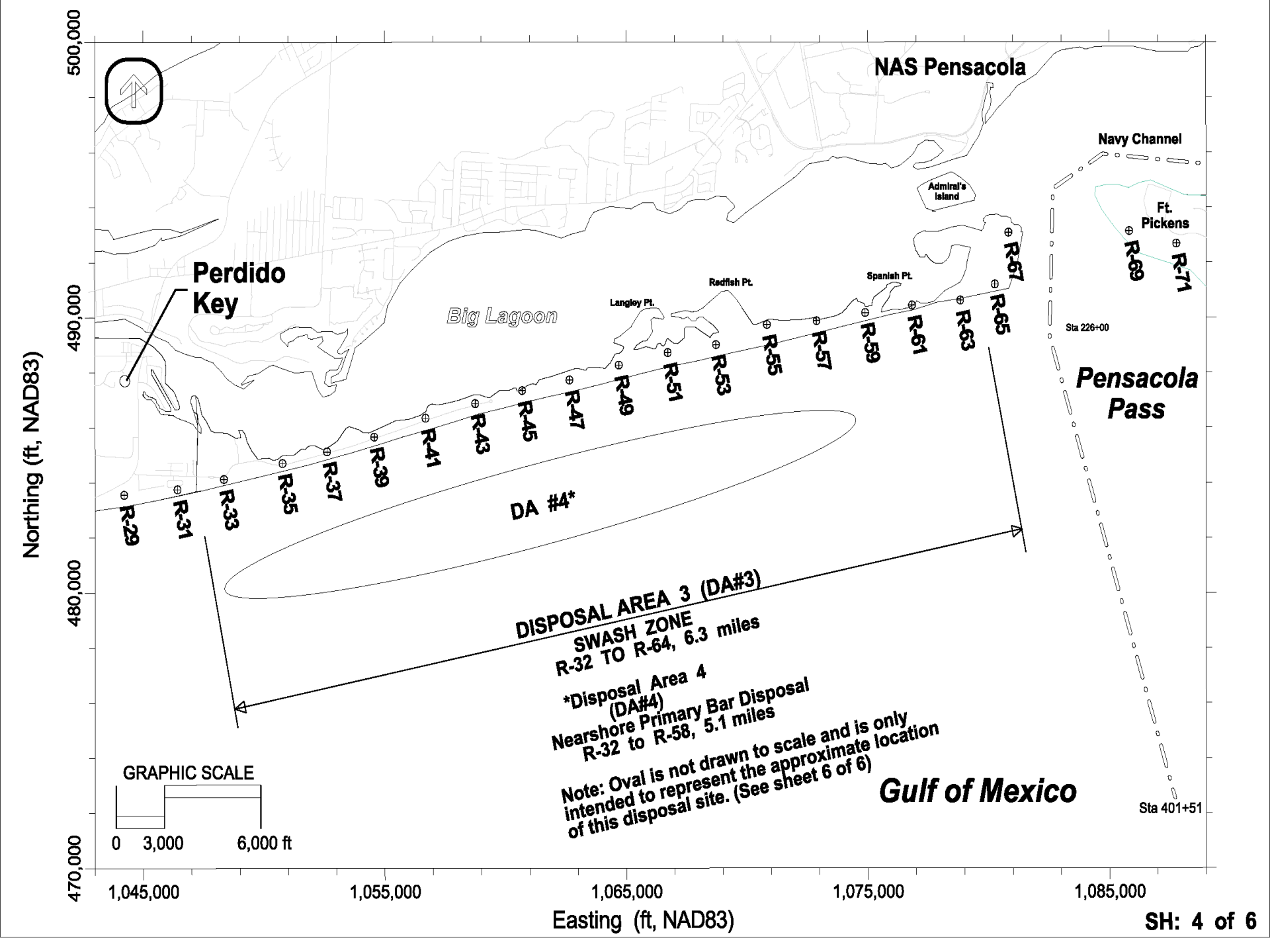
DEPTHS ARE IN FEET AND REFER TO MEAN LOW WATER.
GRAND BAY
SPANISH RIVER
Bay Grass
TUNNEL
ISLAND
Location of Turning Basin
MOBILE BAY CHANNEL EXISTING 45' X 400' AUTHORIZED 55' X 550'
TURNING BASIN 27' X 250' X 800'
MOBILE DISTRICT OFFICE
TURNING BASIN 27' X 600' X 800'
PINTO ISLAND
EXTENT OF EXCAVATION
SAND ISLAND
McDUFFIE COAL TERMINAL
Turning Basin Area
Approximate Location of Garrows Bend Disposal Area
MOBILE HARBOR, ALABAMA
MOBILE WATERFRONT AREA
REVISED TO 30 SEPTEMBER 1997
OFFICE OF THE DISTRICT ENGINEER
MOBILE, ALABAMA

Mobile Harbor Turning Basin – New Work



BUILDING STRONG®

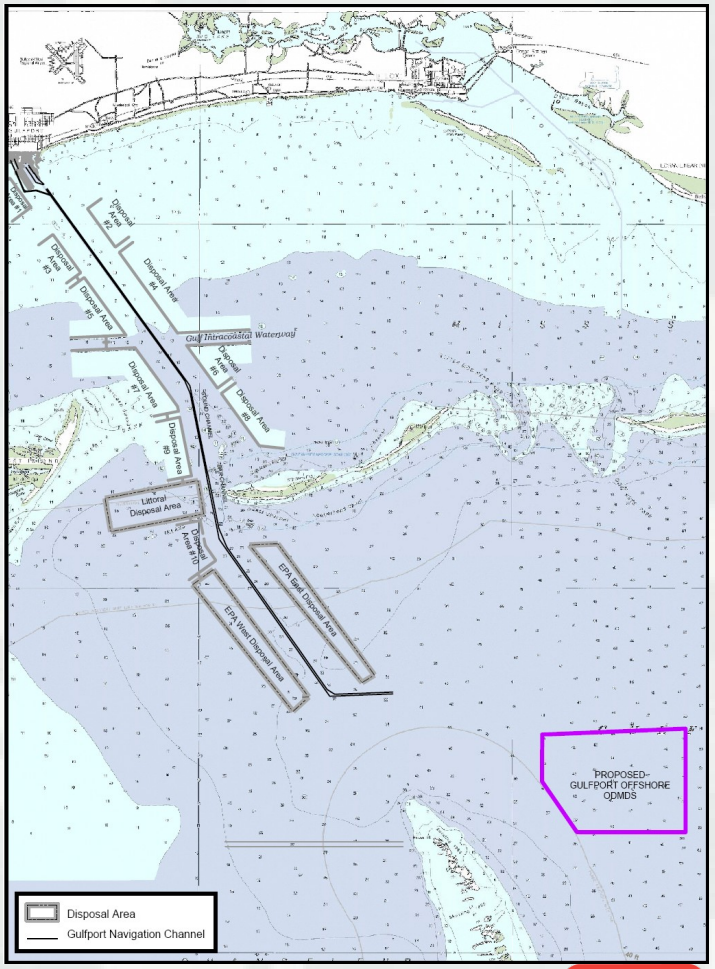

NAS Pensacola
Navy Channel
Admiral's Island
Ft. Pickens
R-69
R-71
R-67
Perdido Key
Big Lagoon
Langley Pt.
Redfish Pt.
Spanish Pt.
R-65
R-63
R-61
R-59
R-57
R-55
R-53
R-51
R-49
R-47
R-45
R-43
R-41
R-39
R-37
R-35
R-33
R-31
R-29
Sta 226+00
Pensacola Pass
DA #4*
DISPOSAL AREA 3 (DA#3)
SWASH ZONE
R-32 TO R-64, 6.3 miles
*Disposal Area 4
(DA#4)
Nearshore Primary Bar Disposal
R-32 to R-58, 5.1 miles
Note: Oval is not drawn to scale and is only intended to represent the approximate location of this disposal site. (See sheet 6 of 6)
Gulf of Mexico
Sta 401+51
GRAPHIC SCALE
0 3,000 6,000 ft
500,000
490,000
480,000
470,000
Northing (ft, NAD83)
1,045,000
1,055,000
1,065,000
1,075,000
1,085,000
Easting (ft, NAD83)

ESA Section 7 & MSFCMA

- Gulf sturgeon
- Manatee
- Sea Turtles
- Essential Fish Habitat
- Alabama red-bellied turtles

Gulfport Harbor Navigation Channel Proposed Improvements

Channel Segment	Authorized Dimension	Existing Dimension	Proposed Action
Bar Channel	Width – 400’ Depth – 38’	Width – 300’ Depth – 38’	Width – 400’
Sound Channel	Width – 300’ Depth – 36’	Width – 220’ Depth – 36’	Width – 300’



Pre-dredging Characterization Studies

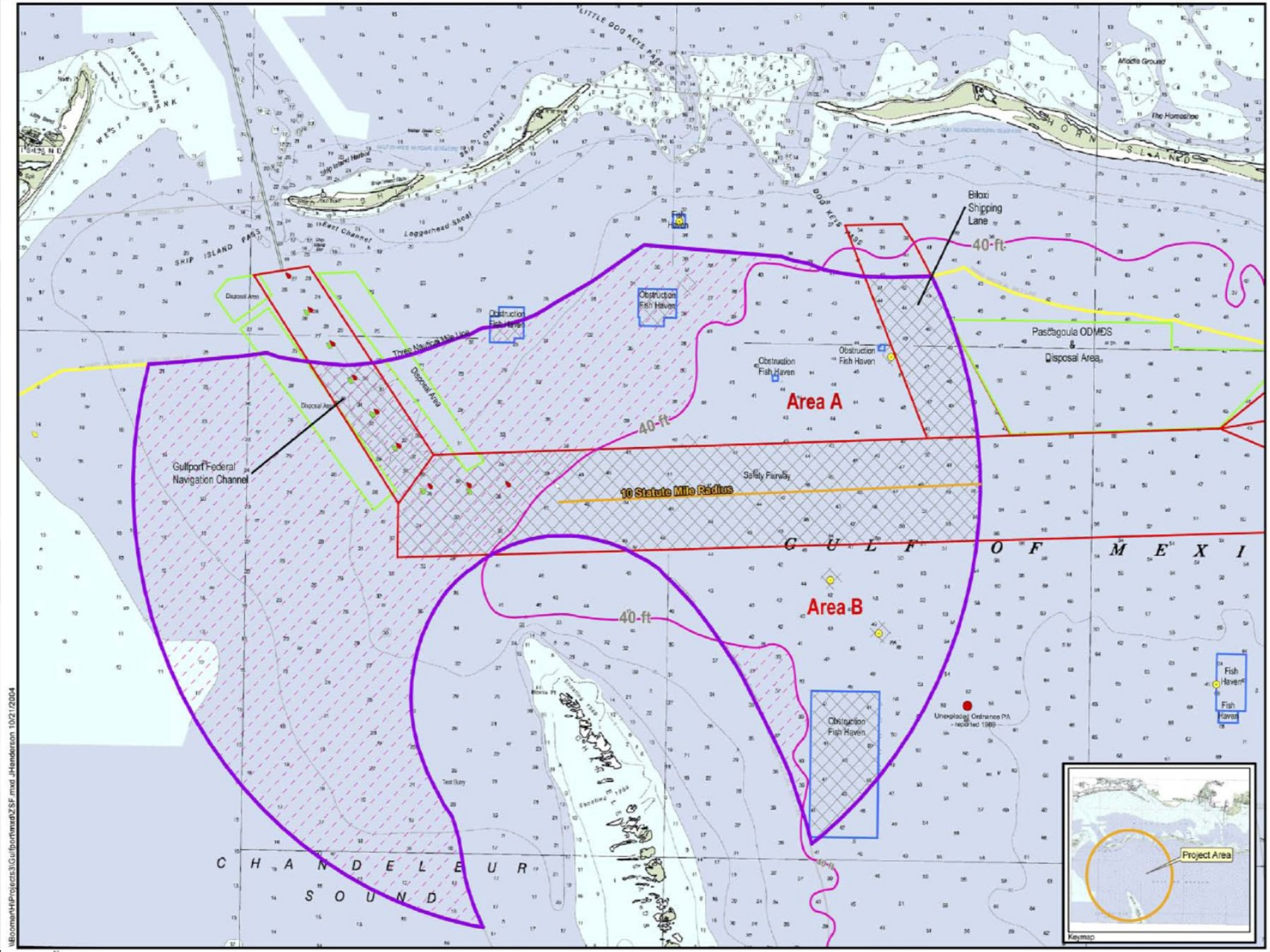
- Characterization studies were performed 2005
- Guidance and procedures defining requirements include:
  - Inland testing manual
  - Ocean testing manual
  - QA/QC guidance for dredged material evaluations
  - Methods for Collection, Storage, and Manipulation of Sediment for Chemical and Toxicological Analyses

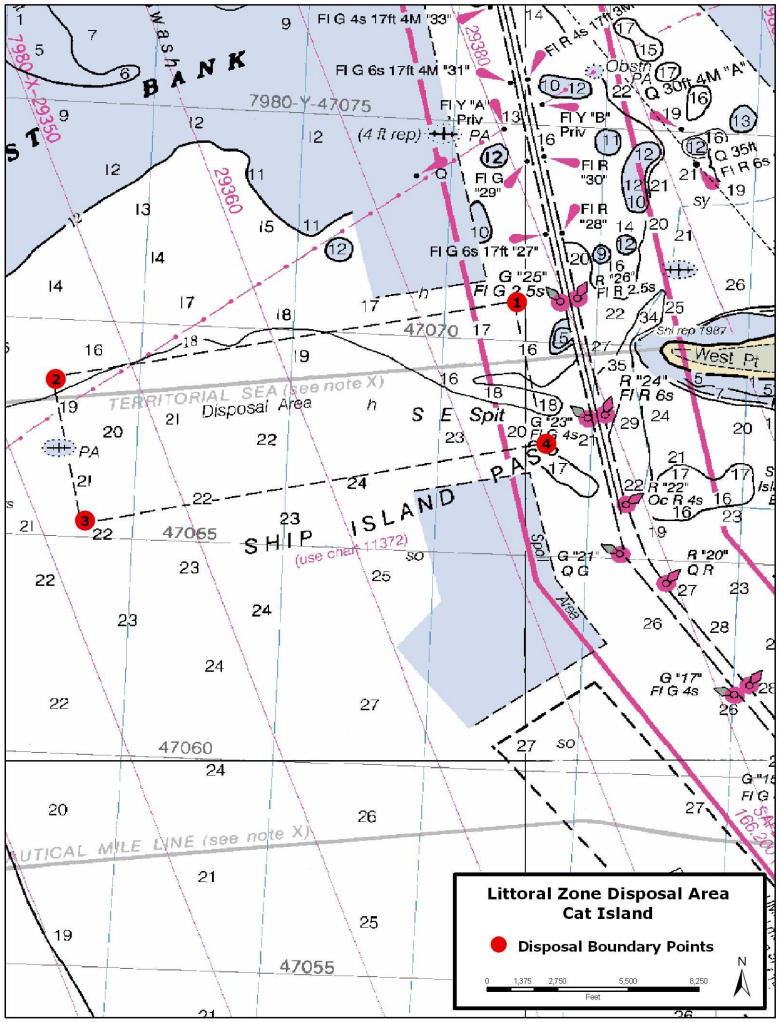
Characterization Studies

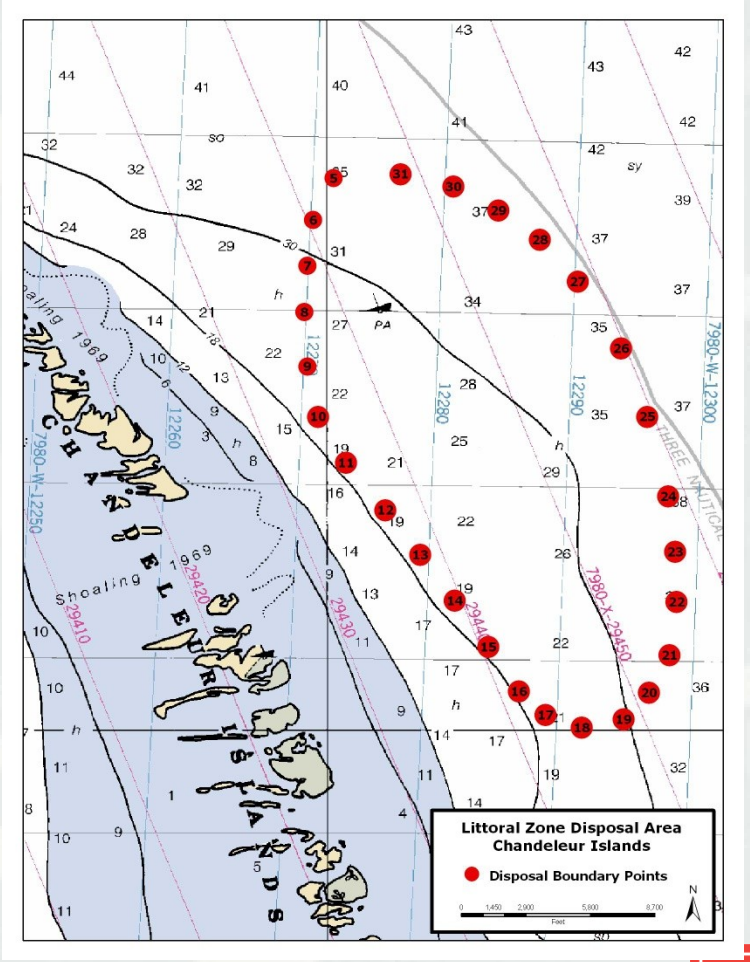
- Collected sediment core samples at 15 locations along the channel from 5’ to 28’ below the sediment/water interface
- Characterized water column conditions during survey
- Performed chemical analyses on sediment samples
- Conducted chemical analyses on elutriate samples
- Conducted toxicity tests on sediment and water samples
- Performed bioaccumulation studies on sediments

Gulfport Harbor Navigation Channel Proposed Improvements

- Changes in Mississippi Sound
  - Increase width by 80’ for approximately 11 miles
  - Dredge ~107 acres of undisturbed bottom
- Changes in Ship Island Pass
  - Increase width by 100’ for approximately 10 miles
  - Dredge ~97 acres of undisturbed bottom
- Dredged material disposal requirements
  - Generate slightly more than 3.8 million cubic yards


Area A
Area B
40-ft
10 Statute Mile Radius
Safety Fairway
Gulfport Federal Navigation Channel
Three Nautical Mile Line
Disposal Area
Obstruction Fish Haven
Biloxi Shipping Lane
Pascagoula ODMDS & Disposal Area
Unexploded Ordnance PA - reported 1969
Project Area
Keymap
C H A N D E L E U R S O U N D
G U L F O F M E X I
SHIP ISLAND PASS
LITTLE DOG KEYS PASS
DOG KEYS PASS
East Channel
Loggerhead Shoal
Middle Ground
The Horseshoe
WEST SHORE BANK
\\Boomerth\Projects3\Gulfport\mxd\GSF.mxd JHenderson 10/21/2004





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Change Happens

Deepwater Horizon Oil Spill on April 20th 2010